SYNOPSIS ON

IMPACT OF TOTAL SANITATION CAMPAIGN ON RURAL HOUSEHOLDS IN ANDHRA PRADESH – A CASE STUDY OF VASADI VILLAGE IN VIZIANAGARAM DISTRICT
(Open Defecation Focus Oriented Study)

By

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SYNOPSIS

Sanitation is a critical issue as it is linked to both human health and basic dignity of life, especially for women and young girls. Poor sanitation directly results in not only decline in the quality of life, but also quantity of available water resources and the problem is now fully being treated with greater degree of seriousness than ever before. This was highlighted during World Summit on Sustainable Development in Johannesburg in 2002, where the existing Millennium Development Goals (MDGs adopted by the U. N. in New York in September 2000) were expanded to include the sanitation target of halving the proportion of people without access to sanitation in 1990 by the year 2015. Low access to sanitation, whilst having disastrous effects on public health is also causing very adverse impact on environment.

The problem of poor sanitation is expected to become more serious in the years to come as the city population continues to grow rapidly. It is projected that by the year 2030, the urban population will grow to 3.3 billion, over 90 per cent of which will accrue to the cities of developing countries (UNCHR 1997). In the past ten years, diarrhoea has killed more children than all those killed in wars and armed conflicts in almost sixty years, since the end of Second World War. A child dies every 15 seconds from diarrhoea caused largely by poor sanitation and unsafe water provisions (WSSCC 2000). Despite the efforts and investment, many low-income countries continue to suffer from inadequate and unsafe sanitation.

The Millennium Development Goals (MDGs) advanced by the international community states that, the aim is to halve the number of people without adequate sanitation facilities by 2015. To achieve this target, on an average 3.5 lakh people per day will have to gain access to improved sanitation between now and 2015 (IRC 2003). Despite the global commitments, the improvements made by many countries during the last one decade are very poor and the identified constraints include financial difficulties, institutional problems, inadequate human resources, lack of political commitment, insufficient community involvement, inadequate operation and maintenance, lack of hygiene education, poor water quality, people's attitude towards sanitation and insufficient information and communication (WHO/UNICEF 2000).

Government of India has introduced the Total Sanitation Campaign (TSC) alongside the long-running Central Rural Sanitation Programme (CRSP). The TSC has been designed to be

more demand-responsive, using IEC (Information, Education & Communication) to stimulate demand, while also promoting low-cost sanitation technologies and alternative delivery mechanisms. The supply driven CRSP was completely stopped by March 2002, leaving the TSC as the main government program for rural sanitation.

The most striking thing about Total Sanitation Campaign is the amount of financial resources allocated by authorities for its implementation. The total planned outlay of the TSC is US $ 810 million, including as high as US $ 4 million per district in the more populous states. However, the TSC is not entirely financed by the government, as 19 per cent of the planned expenditure will be from self-provision (their own contribution) by the rural households that built toilets as a result of TSC.

From a different perspective, this vast investment reflects the huge rural population in India without any access to sanitation. But the TSC budget is almost 20 times larger than the equivalent national program in Bangladesh, whereas the unserved population in India (755 million) remains only 10 times higher than that in Bangladesh (71 million) or Pakistan (55 million). The impressive size of the TSC budget also reflects both facets of India's buoyant and booming economy with considerable rise in tax collections every year after launching economic reforms in 1991, apart from the emphasis on large scale government interventions in social sector progress.

Objectives of Total Sanitation Campaign

The major objective of the Total Sanitation Campaign (TSC) is to bring about the desired improvements in the general quality of life in rural areas. To achieve this objective, the following operational objectives have been set for attaining as goals:

1. Accelerating sanitation coverage of the rural population to bring about an improvement in the general quality of life in rural areas,
2. Generating the demand or felt need through the creation of awareness, health education and the promotion of health and hygiene.
3. Covering all the schools and anganwadis in rural areas with sanitary facilities and promote hygiene behavior among students and teachers,
4. Encouraging suitable cost effective and appropriate technologies for purposes of improving sanitation.
5. Endeavour to reduce water and sanitation related diseases.

Objectives of the Study

The specific objectives of the study are:

1. To analyse the status of sanitation and open defecation levels in India;
2. To analyse the Health, Hygiene and Sanitation levels in Andhra Pradesh vis-à-vis India;
3. To study the socio-economic profile of the sample households in the study area;
4. To examine the impact of TSC with respect to open defecation among rural households in study area;
5. To find out the impact TSC in terms of health expenditure among rural households in the study area and
6. To suggest appropriate policy measures.

Hypotheses

Based on the objectives of the study, the following hypotheses were formulated:

1. Socio-economic conditions of the sample households impact on health, sanitation and hygiene conditions.
2. Open defecation is more behaviour related rather than income and education related in the rural areas.
3. Health expenditure is independent of income, but depends more on sanitation and hygiene conditions.

Data Sources

The study is based on both primary as well as secondary sources of data. It is proposed to organize the study through designing a well-structured schedule covering socio-economic aspects such as details about social classification, literacy levels, size of family, type of family, number of living rooms. Further, the questionnaire is also designed to include information relating to health, hygiene and sanitation aspects. In order to pursue the objectives outlined, the study is designed to examine the economic aspects of health, hygiene and sanitation in Andhra Pradesh. Data is collected for the cross section period 2009-10. Further, secondary data relating to health, hygiene and sanitation are drawn from NSSO 54^{th} Round (1998) (National Sample Survey Organisation) and other sources such as Government Reports, Statistical Abstracts of Andhra Pradesh and India published by the Directorate of Economics and Statistics. Hand Book

of Statistics, Vijayanagaram District published by the Chief Planning Office, Vijayanagaram, Economic Survey of India and Andhra Pradesh, Journals, periodicals constitute the secondary data sources. Information is also obtained by accessing the reports of the Department of Drinking Water and Sanitation, Ministry of Rural Development, Government of India, New Delhi and tapping various sites on the web.

Sample Design

In order to pursue the objectives outlined, it is proposed to consider a simple random sample of 255 households from one village namely Vasadi in Gantyada mandal of Vizianagaram district in Andhra Pradesh.The village is noticed to be suffering on account of serious sanitation problems and related diseases with people practising wide spread open defecation without arrangements for lifting garbage. Hence, the village is selected for study, after carefully examining several villages in the district. Further, 15 per cent of the households in the village accounting for 255 are considered. A well-structured questionnaire is prepared after making a pilot study with appropriate focus on group discussions and other rural participatory appraisal techniques.

Methodology

The study is carried out with simple tools such as averages and percentages. Moreover, chi-square test of independence of attributes is employed to observe the association or relationship between various aspects relating health, hygiene and sanitation. In the present study ordinary least square method (O.L.S) is used to estimate the regression equations. Under certain assumptions[1] such as homoscedastic disturbances, absence of auto correlation and multicollinearity, the O.L.S method yields Best Linear Unbiased Estimates (BLUE). To the best possible extent care has been taken to avoid the problems associated with the said assumptions. Step wise regression was used to avoid the problem of multi-collinearity.

It is proposed to organize the study into eight chapters and the scheme of analysis is as follows: Chapter I Presents the introduction of study, the problem, need for the study, data

sources, sample design, methodology followed and scheme of analysis. Review of literature relating to health, hygiene and sanitation is presented in Chapter II. Chapter III is intended to focus on the status of health, hygiene and sanitation in India. Socio economic characteristics of sample respondents are portrayed in Chapter IV. Chapter V is devoted to analyse health, hygiene and sanitation in India by considering evidence from secondary data. Analysis of health, hygiene and sanitation is attempted by considering evidence of primary data collected from ample households of Vasadi village in Andhra Pradesh. Chapter VIII is intended to present the summary and findings, policy suggestions and limitations of the study.

MAJOR FINDINGS OF THE STUDY

1. It is observed that about 83 per cent Indian population living in rural areas did not have a toilet at home to defecate in private and were resorting to open defecation. State –wise analysis shows that Orissa had the highest percentage of people without access to toilet i.e., 96.1, while North Eastern States with 18.1 per cent account for the lowest per cent of rural households without any latrine facility. The analysis implies that there are 10 major states which are found to above the national average with Andhra Pradesh being the 6^{th} in state in terms of rural households without latrine facilities. It may also be observed that smaller states are better placed compared to the larger states in this regard.
2. The analysis shows that the urban households without access to toilets are estimated as 25.5 per cent at the all India level. However, state-wise analysis reveals that smaller states such as Assam with 2.0 per cent, North Eastern states (2.4 per cent) and Kerala (5.1 per cent) are better placed as compared to major states like Bihar (45.3 per cent), Madhya Pradesh (45.2 per cent), Orissa (35.9 per cent), Tamil Nadu (32.5 per cent), Andhra Pradesh (30.8 per cent). There are 9 major states that have reported above the national average in terms of no access to latrine. Interestingly Andhra Pradesh remains at sixth position in the country with states without access to latrine in the urban areas also.
3. The study shows that nearly 3 per cent of the rural households in India are provided with service latrines (public toilets) by local bodies. In this regard also Assam and North-Eastern states have performed very well by providing access to more than 19 per cent and 11 per cent of rural population respectively. In the remaining states due to the neglect of

this provision more open defecation is observed. In the case of Andhra Pradesh, mere one per cent rural household are provided with service latrines.

4. Analysis of the state wise distribution of urban households by use of service latrine in India implies that Assam and Uttar Pradesh have performed very well by providing access to 20 per cent and nearly 18 per cent of their urban households. Where as Andhra Pradesh has provided this essential facility to only 1.2 per cent of urban households which is lowest in the country.
5. Analysis of the state-wised distribution of rural household by use of septic tank toilet implies that on an average 7.5 per cent of Indian rural households use septic tank toilets. The analysis reveals that Kerala has highest per cent i.e., 26.0, while Orissa (1.7 per cent) for the lowest per cent of rural households using septic tank toilets. The analysis observes that there are 9 states which are above national average and 7 states are below the national average while Andhra Pradesh with 9.3 per cent of rural households use this technology ranks 7^{th} in the country.
6. Analysis of the use of septic tank toilet in urban areas reveals that than 35 per cent use septic tanks toilet in India. Out of the 9 major states accounting more than the national average in terms of use of septic toilet in urban areas, Andhra Pradesh with 43 per cent ranks 8^{th} in the country.
7. Analysis of the use of pour-flush pit toilet in rural areas reveals that the overall percentage of rural households using this technique is about 3 per cent in India, where as in Andhra Pradesh less than 1 per cent rural households use this method as they rely more on septic tank technology. The highest percentage of households using pour-flush technique is reported in Kerala i.e., 29.3 and the lowest is reported in Maharashtra i.e., 0.3 per cent.
8. Analysis of the use of pour-flush pit-toilet in urban areas shows that 8.4 per cent urban households in the country have used pour-flush pit technique. The said technology is very popular among Kerala urban households as 26 per cent (highest in the country) adopted‘pour -flush pit’ method, while in Orissa reported 3.4 per cent adoption which is lowest in the country. While in Andhra Pradesh around 5 per cent urban households are using this technique.

9. Analysis of the sanitation and status of public health in Andhra Pradesh reveales that there is a massive of shortage of trained health personnel due to absence of interest on the part of government. There is deficit of more than 350 PHCs and more than 300 community health centers. It also indicates huge gap in the number of required male and female health assistants, ANMs, LHVs in the state which is between1500 to 6400. There is need to recruit urgently more than 70 Obstetricians and Gynecologists, 150 Physicians, around 80 Pediatricians and around 400 total specialists in the state. Similarly to strengthen the health infrastructure the state requires employing more than 100 radiographers, 120 pharmacists, 370 laboratory technicians and nurses/midwife respectively.
10. About 70 per cent of the sample households are having pucca houses (either tiled or RCC roofed) in the sample village.
11. Community bore well is the main source of drinking water for the sample households in Vasadi village as nearly 70 per cent depend on it.
12. About two-thirds of the sample households i.e. about 66 per cent do not have access to drainage system. Lack of civic amenities, absence of commitment in panchayat authorities, poverty and ignorance are the main reasons for not having drainage in the village.
13. The analysis implies the poor attention of drainage clearance by the village panchyat authorities, which causes the growth of mosquito centers and thereby posing threat to the health of villagers as nearly 78 per cent of households reported the frequency of drainage clearance is between one week to more than one month.
14. The analysis reveals that, the mosquitoe menace is largely due to lack of hygiene, water logging, uncleaned drains, absence of garbage lifting and insanitation in the select village.
15. Majority i.e. 80 per cent of the households are aware of the importance of sanitation, while 20 per cent are unaware of the importance of sanitation.
16. Majority i.e. about 83 per cent of sample households is not having toilets within the home premises, while around 17 per cent is having toilet facility at home.
17. In village Vasadi, majority of households (about 40 per cent) have been habituated for open defecation for generations, while about 14 per cent of households practice open

defecation as it is free of cost. More than one-fourth of the households (about 26 per cent) did not build toilet at home as it gives bad smell.

18. Out of the 44 households, about 77 per cent use a septic tank with the bottom sealed with cement, which requires to be cleaned up once it gets filled, whereas 23 per cent use septic toilet with bottom open to soil.
19. The method of disposal of child faeces/excreta in the family are concerned, more than 61 per cent reported that they always threw it in the drain or on the road while nearly 10 per cent threw it on the garbage dump. However, only 2 per cent disposed it properly/safely in the toilet. As child faeces contains highest concentration of pathogens causing life threatening diseases like diarrhea, viral fevers, tetanus etc. social workers and NGOs should counsel lady members of the households to dispose of child faecal matter safely into toilets inside home or community sanitation complexes by proper flushing.
20. In the select village Vasadi, majority of households i.e. about 79 per cent do not use public latrines, while only about 21 per cent households use public lavatories.
21. In the select village Vasadi, majority i.e. about 81 per cent of households have to walk around 200 to 400 meters to avail public latrines, while about 19 per cent households need to walk only up to 200 meters to avail the facility. However, on the average the households have to walk about 263 meters.
22. Majority of sample households i.e. about 40 per cent need to walk between 600 to 800 meters for attending natural call in open defecation, while about 38 per cent of households walk up to 400 – 600 meters. At the same time, it can be seen that about 8 per cent of households walk less than 200 meters for defecating in open, while about other 8 per cent households walk about 800 – 1000 meters. Thus, the analysis implies that in Vasadi village on the average the villagers have to walk about 567 meters for open defecation.
23. In the select village Vasadi, in respect of a majority of sample households i.e. about 34 per cent the toilet is used by all family members at night time only, while about 32 per cent of households reported that only ladies use the toilet at night time and not during the day time. However, in respect of about 23 per cent households only children are found to use the toilet, while in about 11per cent of households all members of family are reported to use the toilet both at day and night time.

24. In the select village Vasadi, a majority of households i.e. 50 per cent uses the toilet infrequently to avoid filling of the septic tank, while about 32 per cent reported that they do not use the home toilet, as open defecation is more comfortable and also free of cost. At the same time about 18 per cent of households noticed to avoid the usage due to bad smell and preferred open defecation.
25. In the select village Vasadi, about 47 per cent of sample households reported that they have been habituated for open defecation since generations, while about 27 per cent households expressed that personal toilet at home are congested without fresh air flow and hence, preferring open defecation, nearly 10 per cent of households said that nobody had convinced them about the dangers of open defecation to village hygiene, about 8 per cent households felt that open defecation provides good and free fertilizer to fields.
26. Analysis of Chi – square implies that there exists association or relationship between several variable such as between (i) households having drainage system and income of sample households, (ii) households having toilet at home and income of sample households, (iii) households having toilet at home and literacy of sample households (iv) reasons for households not having toilet facility at home and education status of sample households (v) reasons for households not using toilet facility at home and education status of sample households (vi) households preference for ODF to personal toilet use at home and education status of sample households (vii) reasons for households not having toilet at home and occupation of sample households (viii) size of households family and preference for ODF to personal toilet at home of sample households (ix) size of house (plinth area) and toilet facility of sample households.
27. Analysis of Chi – square implies that there exists no association or relationship between several variables such as between (i) reasons for households opting ODF and education status of sample households (ii) method of garbage disposal and education status of sample households (iii) preference of households for ODF to personal toilet at home and occupation of sample households and (iv) garbage disposal place of households and occupation of sample households.
28. When health expenditure (in Rupees) is regressed on family size (FS), annual income (AI), plinth area (PA), water availability (represented by dummy D_1), existence of drainage system (represented by dummy D_2) and availability of toilet facility (represented

by dummy D_3), the selected regression equation is found to be a reasonably good fit as the explanatory variables included in the model provide explanation to the extent of 63 per cent.

The estimated equation is given by

HEX = 2.315 + 0.15 FS –0.162 AI –0.587 PA –0.378 D_1– 0.32 D_2– 0 .25 D_3

(0.315) (0.178) (2.618)* (9.023)* (6.135)* (0.516) (4.207)*

Adjusted R^2 = 0.63 F – Value = 16.641

29. Except the coefficients of the variables with respect to family size (FS) and drainage system (D_2) all other coefficients of the variables including annual incomes(AI), Plinth area (PA), Water availability(D1 and toilet facility(D3) are found to be statistically significant at 1 per cent level. Moreover, the coefficients of all variables are observed to have the expected signs. Thus, the analysis implies that annual income, plinth area of house, availability of water and toilet facilities are the important factors affecting health expenditure.

Overall Summary

1. Study of socio economic conditions in Vasadi Village implies that more about 62 per cent of households are land less labour, 33 per cent households are very small farmers with a meagre land of less than 2 acres, 90 per cent of households are living below poverty line, 70 per cent households share community water well, 66 per cent households do not have drainage system, 83 per cent households do not have toilet facility and 64 per cent households felt illness clearly portrays a pathetic picture of sample households. In the light of facts mentioned, the study draws support infavour of hypothesis 1, which implies that socio-economic conditions of the sample households have their impact on health, sanitation and hygiene conditions.
2. The aspect of open defecation is concerned, in select village, Vasadi, out of 255 sample households, only 44 households (17 per cent) reported to have personal toilets at home. Hence, 83 per cent of households are opting for open defecation as there is no alternative to attend natural calls. However, though 44 households have toilet facility at home, due to restricted use on account various reasons, some

family members of those households are also opting for open defecation. Thus, irrespective of income levels, more or less all the households are opting for open defecation in the village. Further, the analysis also implies no association or relationship between reasons for households opting ODF and education status and of sample households. Hence, the study draws support in favour of hypothesis 2 implying that open defecation is more behaviour related rather than income and education related in the rural areas.

3. The regression analysis implies that annual income, plinth area of house, availability of water and toilet facilities are some important factors affecting health expenditure. Thus, the study found only partial evidence in favour of the hypothesis 3, implying that health expenditure is not independent of income, but depends more on sanitation and hygiene conditions.

Policy Suggestions

Based on the results arrived, the study outlines the following policy implications:

- In the select village Vasadi, steps should be initiated to push up the annual incomes of households by effectively implementing the income generating programmes.
- The local body of Vasadi village should seek the help of state government in providing pucca houses under Indira Avas Yojana and other schemes, so as to improve the size of houses i.e., plinth area.
- As availability of water is found to be a significant variable affecting health expenditure, the local body should take responsibility of supplying adequate water through providing community bore wells/street taps.
- Further, as availability of toilet facility is also found to be a significant variable affecting health expenditure of sample households, efforts should be initiated to provide subsidy for construction of toilets/free distribution of toilet kits to the villagers.

- Water and drainage should be developed to achieve 100 per cent sanitation coverage by entrusting panchayati raj institutions and local administration the responsibility of operation and maintenance of water supply and sanitation.
- Local government should take steps for total elimination of dry latrines and the inhuman scourge of manual scavenging by converting all existing dry latrines to low-cost sanitary latrines.
- The local body is expected to enhance the component of subsidy as it is inadequate for poor households to construct toilets. Demand for toilets declines whenever it is linked to community contribution.
- Involvement of NGOs should play a key role in encouraging the habit of sanitation and make it demand driven instead of imposing it by government from the top. NGOs played a key role in increasing the coverage of sanitation to impressive level in Bangladesh. Even private sector and community participation should be encouraged to enhance the sanitation coverage.
- Due to bottlenecks in the governance, lot of money meant for making toilets remains unspent in many states even though the pent up demand for toilets is much higher than their supply.
- Steps should be initiated for the use of electronic media in disseminating information and educating to the people about the tremendous benefits of clean sanitation and safe drinking water for preventing waterborne diseases and deaths especially among children.
- Measures should be taken to Improve sanitation in rural areas through IEC programmes and concept of ECOSAN – the ecological sanitation or environmental sanitation, which basically is a mechanism to recycle urine and excreta matter into fertiliser and fuel as already successfully demonstrated by an NGO run by Mr. Nandan Nilakeni in Bangalore.
- By using IEC programmes there is urgent need to introduce organisational reforms, changing attitudes and behaviour with full participation of women.
- Steps should be initiated for provision of clean toilets in village schools and sanitary napkins for poor girls, which improves the school attendance and their menstrual hygiene and general health.

- TSC provides platform for innovation and creative solutions like cost effective and affordable toilets, water saving toilets made of fibre glass at ` 60 each, toilets made of clay from village resources in environment friendly ways creating jobs, vacume pressure technology, Rural Sanitary Marts (RSMs), public-private partnerships in building and maintaining clean affordable Community Sanitary Complexes (CSCs).
- Polluter paying for rectifying damage to environment should be adopted to finance waste disposal programmes.
- Protection of environment and safeguard of health through the integrated management of solid waste and water resources.

Limitations

1. As the Study dealt with qualitative variables which cannot be quantified, the analysis is attempted with simple tools such as Chi – square test of independence of attributes and multiple regression analysis only. Advanced tools could not be used due to paucity of data.
2. Issues and responses relating to open defecation is a very delicate, extremely personal, sensitive subject to be analysed. Hence reporting bias may affect results of the study.
3. As the analysis is based on case study, the results of the study may not be generalized for the entire rural community.
4. The study is based on a representative village with all sections of society. The present study is confined to a single village covering wide aspects of sanitation such as open defecation, water supply, garbage disposal, availability of drainage, availability of personal toilet. However, the results of the study may not be generalised to the entire country or state, because of variations in socio-economic characteristics such as culture, traditions, habits and perceptions of households as such features vary from village to village, state to state, region to region, between religious and ethnic groups.

5. Shortage of village data on configuration of income in detail, such as components of health expenditure, occupational details are also limitations of this study.

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